

REMARKS

In the Official Action, the Examiner rejected pending claims 1-5, 7-21 and 30-37. By the present Response, Applicant amended claims 1, 8 13, 30, and 35, cancelled claims 7 and 34, and added new claims 28 and 39 to clarify features of the present techniques. Support for the amendments can be found in the specification on: page 6, lines 24-26; page 8, line 15; page 9, lines 25 – page 10, line 11; page 10, line 32 – page 11, line 2; and page 18, lines 24-34. No new matter has been added. Upon entry of the amendments, claims 1-5, 8-21, 30-33, and 35-39 will be pending in the present application. Applicant respectfully requests reconsideration and allowance of the pending claims in view of the foregoing amendments and following remarks.

First Rejection under 35 U.S.C. § 103

The Examiner rejected claims 1-5, 7-11, 13-21, and 30-36 under 35 U.S.C. § 103(a) as being unpatentable over Lashier et al. (U.S. Patent No. 5,689,028) in view of Alsmeyer et al. (U.S. Patent No. 5,683,172). Claims 1, 13, and 30 are independent. Specifically, the Examiner stated:

Lashier discloses a process of trimerization of ethylene to produce hexene in the presence of a catalyst and optionally added hydrogen (the abstract; col. 1, lines 55-62; col. 5, lines 25-27).

Lashier et al discloses that the conversation, selectivity and the produced polymer polymerization process must be monitored (col. 9, lines 24-28).

Lashier does not disclose using Raman spectrometry equipment to monitor these parameters of the process (see entire patent for details). However; Alsmeyer discloses that chemical processes such as polymerization can be monitored in-situ by Raman spectrometry (the abstract; col. 1, lines 44-60).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Lashier process by using the Raman spectrometry to measuring reactants and/or product of the Lasher trimerization of ethylene to decide the conversion, selectivity, and the amount of polymer of the process since Alsmeyer discloses that the Raman spectrometry has a lots [sic] of advantages for monitoring chemical processes (col. 1, lines 22-27; col. 2, lines 47-51; col. 3, lines 15-30 and 59-67).

All of the conversion, selectivity and the amount of polymer must be decided by measured amounts of components in the reaction. Once, measured parameters are not desired ones, one having ordinary skill in the art would adjust the process such as by changing the input and the output of the reactants, the catalyst and/or polymer product to/from the reactor.

Alsmeyer does not discloses [sic] the resolution of the Raman equipment. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Lashier process having been modified by the Alsmeyer teaching by using appropriate wave lengths provided that wave lengths can be used to monitor the process.

Office Action, pages 3-4.

Legal Precedent

The burden of establishing a *prima facie* case of obviousness under Section 103 falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (PTO Bd. App. 1979). To establish a *prima facie* case, the Examiner must not only show that the combination includes *all* of the claimed elements, but also a *convincing line of reasoning* as to why one of ordinary skill in the art would have found the claimed invention obvious in light of the teachings of the references. *Ex parte Clapp*, 227 U.S.P.Q. 972 (B.P.A.I. 1985). Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention absent some teaching or suggestion

supporting the combination. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984). The Examiner must provide objective evidence, rather than subjective belief and unknown authority, of the requisite motivation or suggestion to combine or modify the cited references. *In re Lee*, 61 U.S.P.Q.2d. 1430 (Fed. Cir. 2002). One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

Features of Independent Claims 1 and 30 Missing from the Cited Combination

Independent claim 1, as amended, recites “monitoring an olefin oligomerization reaction by using *low-resolution* Raman spectrometry equipment.” (Emphasis added). Independent claim 30, as amended, recites “wherein the Raman spectrometry equipment comprises *low-resolution* Raman spectroscopy equipment.” (Emphasis added).

In contrast, the secondary reference, Alsmeyer, relied on by the Examiner to disclose the use of Raman spectrometry equipment, “does *not* disclose the *resolution* of the Raman equipment.” Office Action, page 4 (emphasis added). Indeed, Applicant believes that Alsmeyer is directed to the use of high-resolution Raman equipment and does not even contemplate the use of low-resolution Raman equipment. *See, e.g.*, Alsmeyer, col. 15, lines 12-35; col. 16, lines 52-59 col. 17, lines 1-17; col. 18, lines 30-67 (differentiating concentrations of isomers of xylenes in a mixed-xylene sample); and Specification, page 4, lines 3-21; page 18, lines 14-34. Per the foregoing legal precedent, the Examiner has the burden to show a *prima facie* case of obviousness wherein the combined

references teach or disclose each and every element of the presently claimed invention. Here, the Examiner has plainly failed to meet his burden.

Moreover, Applicant emphasizes that the use of low-resolution equipment in accordance with the present techniques, while generally attractive from a capital-cost standpoint, is a difficult and unique undertaking in an olefin oligomerization process in measuring concentrations of components (e.g., ethylene and 1-hexene) having overlapping Raman peaks. *See* Specification, page 4, lines 3-21; page 18, lines 14-34. Such an undertaking is clearly not obvious as asserted, incorrectly, by the Examiner. *See* Office Action, page 4; Specification, page 4, lines 3-21; page 18, lines 14-34.

Lastly, as acknowledged by the Examiner, the primary reference, Lashier, does not teach the use of Raman spectrometry equipment, much less the resolution of such equipment. *See* Office Action, page 4 (“Lashier does not disclose using Raman spectrometry equipment to monitor these parameters of the process.”).

In view of these deficiencies, independent claims 1 and 30 and their dependent claims are believed to be patentable over the cited combination.

Features of Independent Claim 13 Missing from the Cited Combination

Independent claim 13, as amended, recites “making a first measurement of a concentration of the monomer using Raman spectrometry equipment *without simultaneously*

performing a reference measurement of a reference material with the Raman spectrometry equipment.” (Emphasis added). Quite the opposite, Alsmeyer requires a simultaneous measurement of a reference (and a corresponding sample spectrum). Alsmeyer, col. 3, lines 34-37. As stated in Alsmeyer, its system “simultaneously acquires the convolved spectra of a chemical sample in a reaction stream and a reference material.” Alsmeyer, col. 3, lines 34-37 (emphasis added); *see also* col. 9, lines 18-29 (explaining that the Alsmeyer system requires “simultaneously irradiating [both] a reference material and a chemical composition containing one or more constituents” to compensate for instrumental variations.); Specification, page 10, line 32 – page 11, line 2 (“The present processes, methods and apparatus differ from the disclosure of that patent [U.S. Patent No. 5,652,653, a divisional of the Alsmeyer reference having the same written description] at least in that the present processes and apparatus do not employ simultaneously [sic] irradiation of a reference material.”) (emphasis added). As for the primary reference, Lashier it is absolutely devoid of any type of Raman spectrometry equipment. *See* Office Action, page 4. Accordingly, independent claim 13 and its dependent claims are believed to be patentable over the cited combination.

Request Withdrawal of Rejection

In view of the deficiencies of the Lashier and Alsmeyer references discussed above, Applicant respectfully requests that the Examiner withdraw the rejection of claims 1-5, 8-11, 13-21, 30-32, and 34-39 and allow the claims.

Improper Combination - Lack of Objective Evidence of Reasons to Combine

In addition, the Examiner has not shown the requisite motivation or suggestion to modify or combine the cited references to reach the present claims. As summarized above, the Examiner must provide objective evidence, rather than subjective belief and unknown authority, of the requisite motivation or suggestion to combine or modify the cited references. *In re Lee*, 61 U.S.P.Q.2d. 1430 (Fed. Cir. 2002). In the present rejection, the Examiner combined the cited references based on the conclusory and subjective statement that it would have been obvious “to have modified the Lashier process by using the Raman spectrometry to measuring reactants and/or product of the Lasher [sic] trimerization of ethylene to decide the conversion, selectivity, and the amount of polymer of the process since Alsmeyer discloses that the Raman spectrometry has a lots [sic] of advantages for monitoring chemical processes.” Office Action, page 3. However, in Lashier, the non-Raman measurements of conversion, selectivity, and the amount of polymer produced are performed to determine the results of an example laboratory trimerization. *See Lashier*, col. 9, lines 24-28). The Examiner has not provided objective evidence of a reason to modify Lashier to measure such parameters with Raman spectrometry equipment. *See Office Action*, pages 3-4. The Federal Circuit has warned that the Examiner must not “fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher.” *See In re Dembiczak* 50 U.S.P.Q. 2d 52 (Fed. Cir.1999). (quoting *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 220 U.S.P.Q. 303, 313 (Fed. Cir.1983)). Accordingly, Applicant challenges the Examiner to produce objective evidence of the requisite motivation or suggestion to combine the cited references, or remove the foregoing rejection under 35 U.S.C. § 103.

Request Evidence to Support Official Notice

The Examiner acknowledged that the Alsmeyer reference does not teach the resolution of the Alsmeyer Raman spectrometry equipment. Office Action, page 4. However, the Examiner then made the confusing statement that it would have been obvious to use “appropriate wave lengths.” *Id.* Not only does this statement indicate the Examiner’s misunderstanding of the present application and of the cited art, the Examiner has also essentially taken Official Notice of facts outside of the record that the Examiner apparently believes are capable of demonstration as being “well-known” in the art. See M.P.E.P. § 2144.03. Therefore, in accordance with M.P.E.P. § 2144.03, Applicant hereby seasonably traverses and challenges the Examiner’s use of Official Notice. Furthermore, Applicant emphasizes that the facts (e.g., the use of low-resolution Raman, “appropriate wave lengths,” etc.) are not of a “notorious character” and are clearly not “capable of such instant and unquestionable demonstration as to defy dispute.” Accordingly, Applicant respectfully requests that the Examiner produce evidence in support of the Examiner’s position as soon as practicable during prosecution and that the Examiner add a reference to the rejection in the next Official Action. If the Examiner finds such a reference, Applicant further requests that the Examiner specifically identify the portion of the newly cited reference that discloses the allegedly “well known” elements of the recited claims, or withdraw the rejection.

Second Rejection under 35 U.S.C. § 103

The Examiner rejected dependent claims 12 and 37 under 35 U.S.C. 103(a) as being unpatentable over Lashier in view of Alsmeyer, et al., and further in view of Tanaka et al. (U.S. Patent No. 5,750,817). Applicant respectfully traverses this rejection. The Tanaka reference

does not obviate the deficiencies of the Alsmeyer and Lashier references discussed above with regard to the independent claims. Therefore, rejected claims 12 and 37 are believed to be patentable over the cited combination by virtue of their dependency on an allowable base claim and also because of the subject matter they separately recite. Moreover, there is no suggestion or motivation to combine the cited references in the manner asserted by the Examiner or in the manner recited in the claims. For these reasons, Applicant respectfully requests that the Examiner withdraw the rejection of claims 12 and 37 and allow the claims.

Conclusion

In view of the remarks and amendments set forth above, Applicant respectfully requests allowance of claims 1-5, 8-21, 30-33, and 35-39. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

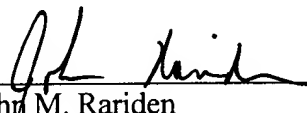
General Authorization for Extensions of Time

In accordance with 37 C.F.R. § 1.136, Applicant hereby provides a general authorization to treat this and any future reply requiring an extension of time as incorporating a request therefor. Furthermore, Applicant authorizes the Commissioner to charge the appropriate fee as well as any additional fees which may be currently due to Deposit Account No. 06-1315; Order No. CPCMC:0008/FLE (33938US).

Respectfully submitted,

Date:

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